JPRS 79121

2 October 1981

USSR Report

CONSTRUCTION AND EQUIPMENT

No. 48

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

[redacted]

JPRS 79121

2 October 1981

USSR REPORT

CONSTRUCTION AND EQUIPMENT

No. 48

CONTENTS

CONSTRUCTION

Construction Developments in Belorussian SSR
(M. P. Pavlova; BYULLETEN' STROITEL'NOY TEKHNIKI, Jun 81)..... 1

Plans for Scientific Research Institute of Structural Parts Reviewed
(V. N. Pivovarenko; STROITEL'NAYA MEKHANIKA I RASCHET SOORUZHENIY, Aug 81)... 6

Past, Planned Construction in RSFSR's Nonchernozem Zone Outlined
(Editorial; SEL'SKOYE STROITEL'STVO, Aug 81)................. 11

Status of Construction in Smolenskaya Oblast's Nonchernozem Zone Told
(B. Katyukha; SEL'SKOYE STROITEL'STVO, Aug 81)................ 16

METALWORKING EQUIPMENT

Machine-Tool Industry Reviewed
(EKONOMICHESKAYA GAZETA, Aug 81)............................. 22

Importance of Machine Building in Retooling Economy Emphasized
(N. Z. Ponomarenko; TEKNOLOGIYA I ORGANIZATSIYA PROIZVODSTVA: NAUCHNOVPROIZVODSTVENNYY SBORNIK, Apr-Jun 81).. 26

Advances in Automated Production Cited
(Various sources, various dates)............................. 30

Automated Control Systems
New Machine Tool, by T. Karyakina
Automated Production Lines
New Production System
Automated Machine Tools, by Z. Bystrova
Programmed Machine Tools, by N. Andryushechkina

CONSTRUCTION DEVELOPMENTS IN BELORUSSIAN SSR

Moscow BYULLETEN' STROITEL'NOY TEKHNIKI in Russian No 6, Jun 81 (signed to press 23 Jun 81) pp 31-33

/Article by M. P. Pavlova, chief of the Department of Standards and Specifications of the Belorussian SSR State Committee for Construction Affairs: "In Gosstroy of the Belorussian SSR"/

/Text/ The Results of the Work of BSSR Gosstroy During 1980, the 10th Five-Year Plan and the Tasks for 1981. The results of the work of BSSR Gosstroy during 1980 and the 10th Five-Year Plan, as well as the tasks for 1981 in light of the decisions of the 26th CPSU Congress were examined with the participation of the executives and responsible officials of party and soviet organizations, concerned ministries and departments, design and scientific research institutes of the republic. It was noted that BSSR Gosstroy, the construction, planning and surveying and scientific research organizations of the republic in 1976-1980 implemented measures on the further increase of the organizational and technical level and quality of construction and the development of urban development and architecture.

The plans of the 10th Five-Year Plan on the total amount of planning and surveying work and the output per worker were fulfilled respectively by 101.1 and 102.7 percent. By means of the advanced technical solutions adopted in designs a decrease of the estimated cost of construction by about 70 million rubles was achieved, the consumption of metal, cement and lumber decreased. A decrease of the labor-output ratio of construction and installation work was also ensured, the proportion of the planning estimates which received a high quality rating increased considerably.

As a result of the implementation of the comprehensive plan of the development and distribution of the material and technical base of construction in the Belorussian SSR for 1976-1980, which was drafted by BSSR Gosstroy and BSSR Gosplan jointly with the ministries and departments of the republic, the construction materials industry and the construction industry were augmented by a large number of major, highly industrial enterprises.

Plant large-panel house building was improved, which promoted an increase of the architectural design and artistic quality of the development of residential rayons. The high quality of plant house building in Minsk was commended in 1978 by the prize of the USSR Council of Ministers. The collectives of the Minsk Production Association of Industrial House Building and Minskproyekt were awarded it. The amount of completely prefabricated construction in the republic increased during the 10th Five-Year Plan from 57 to 64 percent.

During the years of the past five-year plan the construction ministries and departments of the republic received more than 3,000 units of highly productive means of mechanization; the introduction of means of small-scale mechanization was carried out on an extensive scale. In 1980 about 40 percent of the brigades of the basic construction occupations were equipped with them. As a result the machine-worker ratio of construction increased by 25 percent and the power-worker ratio increased by 24 percent.

The republic and oblast seminars being held have promoted an increase of the technical and organizational level of construction. Work was carried out on the further improvement of the management of construction, its concentration and specialization, the more extensive introduction of the brigade contract, continuous flow-line construction and other advanced forms and methods of the organization of production and labor.

At the same time BSSR Gosstroy noted that during the past five-year plan the sector was not able to cope fully with the assigned tasks. A lag was allowed in the fulfillment of the plan assignments on the increase of labor productivity, the introduction of new technology and completely prefabricated construction. The production of a number of efficient structural members and items is being developed slowly in the republic. There is no stable fulfillment of the plans on experimental construction. There are shortcomings in the matter of increasing the success of scientific research and planning and design work.

The specific measures on the retooling and renovation of enterprises of precast reinforced concrete, which were elaborated by BSSR Gosstroy jointly with the construction ministries and departments of the republic and which were included in the plan of the development and distribution of the material and technical base of construction on the territory of the Belorussian SSR for 1981-1985 with an integrated critical analysis up to 1990, are a program for action. This plan calls for that increase of the capacities of the enterprises of the construction industry and the accomplishment of the specialization of plants, which would bring the production of items of a mass products list closer to the places of their consumption, would substantially reduce cross-hauls and would eliminate inefficient shipments. It provides for the solution of a number of other questions, which are connected with the supply of modern efficient materials and the improvement of the use of available production capacities and, first of all, of house-building enterprises.

The organization of the production and use at construction projects of more highly productive means of mechanization and the better utilization of equipment is the second main direction. The measures provide for the further improvement of the organization of production and labor, the improvement of the management of construction, the system of the training and improvement of the skills of personnel, the improvement of the conditions of their labor and daily life. The brigade contract, the unit-by-unit method, Orel "continuous planning," flow-line construction and other advanced forms and methods of the organization of construction should find more extensive use at the construction projects of the republic.

The implementation of the cited measures will make it possible during the 11th Five-Year Plan to reduce substantially the materials-output ratio and the consumption of fuel and energy resources, to decrease labor expenditures and to increase labor productivity in construction.

On the Comprehensive Program of Scientific and Technical Progress. The Republic Comprehensive Program of Scientific and Technical Progress has been approved for the most part by BSSR Gosstroy. The main tasks of capital construction in the republic and the means of accomplishing them are specified by this program. It is envisaged to ensure the planned increase of the production potential of the republic on a new technical basis, the development of the nonproductive sphere, the radical improvement of construction, the increase of labor productivity and the effectiveness of capital investments, the concentration of capital investments and material resources at the most important construction projects and their maximum utilization for the renovation and retooling of enterprises; the limitation of the number of projects being built simultaneously, the shortening of the construction periods, the uniform placement into operation of production capacities and facilities during the year.

In the next few years it is planned by the program to bring the amount of unfinished construction and the reserves of uninstalled equipment in line with the standard; to carry out the further improvement of the drawing up of planning estimates on the basis of the extensive use of automation equipment; to improve the organization of the territorial layout of population centers and to streamline their structure; to use first of all unproductive and inefficient land for construction; to continue the work on the draining and complete utilization of the land of the Poles'ye lowland on the basis of new technological processes.

Certain capital investments for the development of the material and technical base of construction will be required for the fulfillment of the tasks stipulated by the Republic Comprehensive Program; it will be necessary to increase the supply of construction organizations with more productive machines and machinery and with motor transport and at the same time to improve their utilization by increasing the shift coefficient; to take the appropriate steps on the supply of construction organizations with means of small-scale mechanization, power and hand tools; to implement measures on the considerable reduction of the expenditures of manual labor in construction; to create the conditions for the development of advanced forms of the organization of production and labor, the introduction of technologies of construction processes, which have few operations, the dissemination of the start-to-finish flow-line brigade contract on the basis of the increase of the level of the engineering and technological preparation for construction and the level of manning.

Along with the indicated steps, steps will be taken on the implementation of the programs, which have been elaborated in the republic, of the retooling of enterprises of precast reinforced concrete, the increase of the degree of plant readiness of the products of a number of enterprises of the construction materials industry and construction industry of the republic, the expansion of the production and use of new efficient structural members and parts, high-strength concrete and reinforced concrete, as well as intensifiers of its hardening, the introduction of automated control systems of technological processes which make it possible to change purposefully the processes of the formation and heat treatment of reinforced concrete items for the purpose of saving cement and thermal energy resources and increasing labor productivity. Automated production lines for the production of agloporite and other construction materials will also be introduced; the output of crushed and washed rock products will increase, their extraction by hydromechanization will be expanded.

Questions of the improvement of the economic mechanism and the organizational structure of management, the introduction of a uniform system of the preparation for construction, the complete mechanization and automation of technological processes, the increase of the efficiency of automated control systems, the expansion of the network of collective-use computer centers, the improvement of designing work, the increase of the efficiency of scientific research, the strengthening of the contact of science with production and others are included among the main directions in the implementation of the tasks of the Republic Comprehensive Program.

The envisaged set of measures will make it possible to reduce the construction cost and to increase the labor productivity and profitability of construction organizations.

On the Extension of the Rights of the Administrations for Construction and Architecture of Oblast Soviet Executive Committees. For the purpose of increasing the responsibility of oblast administrations for construction and architecture for the quality of the layout and development of cities, settlements and rural population centers, as well as for the more efficient solution of questions connected with the elaboration and supply of design documents to the projects of housing and civil construction, BSSR Gosstroy has examined the question of the extension of the rights of these administrations in the area of the use of designs and has adopted the corresponding decree.

The administrations for construction and architecture of the oblast soviet executive committees of the Belorussian SSR are granted the right:

to specify the standard designs of apartment houses up to nine stories high and of public buildings for construction on the territory of the oblast in conformity with approved pattern of housing construction and the prevailing republic catalogues, with allowance made for local conditions and in coordination with the availability of funds which are allocated to the oblast for engineering equipment;

to solve questions of the use of walling materials when designing projects of housing and civil construction in conformity with the approved structure for the corresponding period;

to permit the design organizations of the republic: in case of the necessity of urban development, to draw up plans of the renovation of apartment houses and public buildings and individual plans of the interiors of separate rooms of buildings for cultural and general purposes, which are built in apartment houses, of small architectural forms, as well as to use in the plans for the construction of buildings and structures works of monument and applied decorative art; in case of the attachment by them of the standard designs of block sections and apartment houses, public buildings and structures to specific participants in the construction, to make changes as the need arises in these designs without disturbing the basic structural arrangement and without worsening their technical and economic indicators. At the same time the changes in the standard designs can be made only in the area of the layout of the nonresidential premises on the first floors and in the basements of apartment houses for the accommodation in them of stores, enterprises of public dining and cultural and personal service; the replacement of precast reinforced concrete structural members with monolithic or standard members, in conformity with the prevailing republic catalogues; the finishing of the facades, the arrangement of the entrances, the installation of the railings of the balconies and loggias of apartment houses and public buildings, which are built from brick or other block materials.

Along with the indicated rights the oblast administrations for construction and architecture are granted the right to make decisions on the elaboration of individual plans of the insertions between the existing buildings and the buildings being constructed according to standard designs on the condition of the use of design decisions, which have been agreed upon by the construction organization for ensuring the integrity of the building up of streets and squares, as well as other rights.

COPYRIGHT: Stroyizdat, 1981

7807
CSO: 1821/120

PLANS FOR SCIENTIFIC RESEARCH INSTITUTE OF STRUCTURAL PARTS REVIEWED

Moscow STROITEL'NAYA MEKHANIKA I RASCHET SOORUZHENIY in Russian No 4, Aug 81 (signed to press 23 Jul 81) pp 4-6

[Article by V.N. Pivovarenko, scientist-secretary at Scientific Research Institute of Structural Parts (Kiev): "The Scientific Research Institute of Structural Parts at the Start of the Eleventh Five-Year Plan"]

[Text] For the collective of NIISK [Scientific Research Institute of Structural Parts] of USSR Gosplan, just as for all Soviet people, the year 1980 was marked by events of historic importance: the 110th anniversary of the birth of V.I. Lenin, the anniversary of the USSR Constitution, preparations for the 26th CPSU Congress, the desire to complete the tasks of the Tenth Five-Year Plan by means of shock labor, the outlining of the basic directions to be followed for developing the national economy of the USSR during the 1976-1980 period and a discussion of the new tasks for communist construction, as contained in the CC CPSU plan for the 26th CPSU Congress entitled "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990."

Just as in past years, the scientific potential and material resources of the institute were concentrated on problems affecting scientific-technical progress and in particular:

...the construction of buildings and installations erected under complicated engineering-geological conditions (unstable ground or shifting soils and so forth);

...the construction of single and multiple-story buildings and installations having enlarged grids and columns made mainly out of high-strength heavy and light concrete and other efficient materials;

...the means and methods for controlling the quality of the construction structures, including indestructible ones.

For the institute's collective, the final year of the Tenth Five-Year Plan was a year of further expansion and intensified scientific study. In the carrying out of theoretical and experimental studies and in the introduction of completed scientific works into construction operations, a chief role, just as in the past, was played by collaboration between the institute and scientific, planning and production organizations of a construction nature. Joint work was carried out here based upon agreements for socialist collaboration aimed at solving important national economic tasks and introducing completed scientific works into operations which will produce substantial economic results.

The institute's collective successfully fulfilled the socialist obligations it under took for 1980 and for the 26th CPSU Congress. The annual and counter plans for scientific research and experimental work were fulfilled ahead of schedule, by 23 December. The overall national economic savings realized from the introduction of the results of scientific works into construction operations amounted to more than 67 million rubles. The constant and effective scientific-technical assistance provided to the construction organizations in expanding the volume of production and use of progressive construction structures, developed by the institute, made it possible to realize a savings of 40,500 cubic meters of concrete, 91,000 tons of cement and 18,800 tons of steel and to reduce labor expenditures by 2,700 man-years.

These indicators were achieved during the course of mastering the production and expanding the introduction of reinforced concrete structures made out of high strength concrete; in the construction on unstable and shifting soils in the Ukrainian and Moldavian SSR's of 9-story buildings embodying improved design solutions and on an overall area of 265,000 square meters, thus making it possible to lower labor expenditures by 220 man-years and the cost of construction by 2.6 million rubles; the organization of production bases for the production of structures for boxlike planking in the cities of Chervonograd and Mozyr', for the surfaces and floors of industrial and public buildings for an overall area of 50,000 square meters and in the development of problems associated with raising quality and improving the methods for transporting them.

In accordance with the counter plan for work carried out in 1980, the institute, in the absence of additional resources and as a result of having raised labor productivity, carried out two scientific-research operations and furnished scientific-technical assistance during the introduction of five results of completed scientific works. This produced an economic saving amounting to 5.6 million rubles.

Having actively joined in the national socialist competition for worthily preparing for the 26th CPSU Congress, the institute's collective undertook and successfully carried out additional obligations. As a result of searching for internal reserves, improving the organization of labor, employing computer equipment efficiently and utilizing equipment ahead-of-schedule and over and above the plan:

...new technological solutions were developed for arched animal husbandry buildings having a span of 28.5 meters and made out of reinforced concrete covering-panels;

...a set of molding equipment was manufactured for the production of reinforced concrete covering-panels for buildings of an agricultural nature and an experimental batch of such structures was produced;

...a study was undertaken of a new type of non-skeleton buildings made out of corrugated panels;

...studies were completed on laminated wall panels on flexible couplings and on triple-layer wall panels having a ventilated intermediate layer;

...scientific-technical assistance was furnished for the ahead-of-schedule placing in operation of the main building of a cotton-spinning factory in the city of Dolina, which made it possible to realize an additional economic savings in excess of 100,000 rubles;

...in the construction of hydraulic engineering installations of the Ministry of Land Reclamation and Water Management of the Moldavian SSR, a hydro-explosive method was introduced for the first time for use in packing unstable and shifting soils; this method made it possible to realize an economic savings of 100,000 rubles;

...control was introduced over the strength of concrete at projects of Ukrelevatormel'stroy, which ensured an economic savings of 100,000 rubles;

...the planning organizations of the RSFSR and Central Asia were provided with additional scientific-technical assistance in the introduction of rational methods for carrying out construction work on unstable and shifting soils;

...additional scientific-technical assistance was furnished to the organizations of Minneftegazstroy of the USSR, in the development of reinforced concrete roof slabs for the existing groups of buildings, for the principal and auxiliary installations along the gas and oil pipeline routes, thus making it possible to realize an annual savings of 500 tons of metal;

...studies were completed on fine-grained concretes, the results of which led to proposals for changing and supplementing SNiP [construction norms and regulations] II-2-75;

...methodical recommendations were prepared for controlling the quality of the joints of wall enclosures, thus making it possible to raise the durability and improve the operational qualities of the buildings.

The total amount of economic savings realized from the introduction of the mentioned works amounted to 800,000 rubles.

The creative activity of the institute's workers remained at a high level: 36 normative documents and standards for controlling the planning and production of construction structures were prepared and published. The USSR State Committee for inventions and discoveries received 85 applications for inventions and 40 decisions were handed down regarding the issuing of copyrights. The volume of published scientific works prepared by workers at the institute comprised 202 printed sheets.

Based upon the results of the socialist competition among the collectives of scientific-research organizations within the USSR Gosstroy system, NIISK was issued a monetary award for the second time.

For the initial year of the Eleventh Five-Year Plan, the socialist obligations of the institute's collective were undertaken in an atmosphere of labor enthusiasm engendered by the decisions handed down during the October (1980) Plenum of the CC CPSU and the national discussion of the CC CPSU plan entitled "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the period up to 1990" and in commemoration of the 26th CPSU Congress and they are meeting the requirements for scientific-technical progress and industrialization in construction.

The plans call for the institute's work plan for 1981 to be fulfilled ahead-of-schedule, by 28 December, Just as during the years of the Tenth Five-Year Plan, the institute will continue to furnish scientific-technical assistance to the construction organizations in increasing the production volume and introducing new and progressive construction structures for use in the construction of industrial, agricultural, housing and civil buildings and engineering installations. This will make it possible to realize a national economic savings of 50 million rubles, lower concrete expenditures by 44,000 cubic meters, cement by 58,000 tons and metal by 12,000 tons and to reduce labor expenditures by 3,000 man-years.

In conformity with the tasks of the state plan for economic and social development of the USSR during 1981, scientific-technical assistance will be furnished in connection with:

...mastering the production and expanding the introduction into operations of precast reinforced concrete structures made out of high strength concretes, in a volume up to 200,000 cubic meters, pre-stressed reinforced concrete structures and products in a volume up to 2.8 million cubic meters and supporting and enclosing structures and products made from light concretes in a volume up to 1.75 million cubic meters;

...the production of structures for an overall area of 56,000 square meters of boxlike flooring, which will make it possible to realize an economic savings of 1.5 million rubles;

...the introduction of concretes with plasticizing additives in a volume of 1.97 million cubic meters and thus realize an economic savings of 1.45 million rubles;

...the use of structures for surfaces, wall enclosures, arched buildings and installations of an agricultural nature which will ensure an economic savings of 0.7 million rubles;

...the construction of 9-story apartments on unstable and shifting soils in the Ukrainian and Moldavian SSR's, with a complex of protective measures and providing an overall area of 400,000 square meters. This will make it possible to lower labor expenditures by 405 man-years and to obtain an economic savings amounting to approximately 4 million rubles;

...the preparation of foundations for industrial and civil buildings in a volume of up to 750,000 cubic meters, using the accelerated [illegible] of packing unstable and shifting soils by means of hydraulic explosions. This will ensure a reduction in labor expenditures of 30 man-years and an economic savings of 1.7 million rubles;

...The introduction into construction operations of prefabricated buildings, erected during the installation of mainline gas and oil pipelines over an area of 40,000 square meters;

...the introduction of methods for testing and controlling the quality of reinforced concrete structures, carried out by enterprises of the construction industry, in a volume of up to 9 million cubic meters;

...the construction of a cotton spinning factory at Dolina, a spinning-weaving factory at Kobrin, a carpet-cloth association in Brest, a felt factory in Kiev and so forth.

In striving to make its own contribution towards the movement "For an Exemplary City" and in preparing to worthily celebrate the 1500th anniversary of Kiev, the institute will continue to furnish active scientific-technical assistance in the planning and construction of industrial, civil and public buildings in the city -- a plant for pipe units, the main building of the Poligrafmash ATP, Detskiy Mir Department Store, architectural department of KISI [Kiev Construction Engineering Institute], cardboard factory, agricultural engineering projects at Zhulyany and so forth.

The collective of the Scientific Research Institute of Structural Parts of USSR Gosstroy, having joined in the competition to implement the historic decisions of the 26th CPSU Congress and to fulfill and over-fulfill successfully the tasks of the Eleventh Five-Year Plan, will persistently strive to attain new achievements in its work.

COPYRIGHT: Stroyizdat, 1981

7026
CSO: 1821/119

PAST, PLANNED CONSTRUCTION IN RSFSR'S NONCHERNOZEM ZONE OUTLINED

Moscow SEL'SKOYE STROITEL'STVO in Russian No 8, Aug 81 (signed to press 13 Jul 81) pp 1-2

[Editorial: "New Horizons for Nechernozem'ye [Nonchernozem Zone of the RSFSR]"]

[Text] Questions of a further rise in the agriculture of Russia's Nonchernozem Zone and, based thereon, a rise in the cultural and living conditions of the villages and the countryside of this zone, occupied an important place in the decisions of our party's 26th congress. The decree, "On Further Development and Increase in the Effectiveness of Agriculture of the RSFSR's Nonchernozem Zone During 1981-1985," which the CPSU Central Committee and USSR Council of Ministers adopted, greatly widens the horizons of Nechernozem'ye and creates conditions for a successful uplift of agriculture and the reconstruction of rural communities.

In carrying out the decree on Nechernozem'ye that the party and the government adopted in 1974, agricultural workers, in cooperation with rural builders and designers and under the supervision of party organizations of the zone's autonomous republics and oblasts, achieved no few successes. The capital investment allotted for Nechernozem'ye enabled the fixed production capital of sovkhozes and kolkhozes to be greatly increased and the power-engineering capacity of agriculture to be raised. The use of mineral fertilizer grew by more than 30 percent. The sown area was enlarged. The zone's farms received 1.3 million hectares of drained and irrigated land, and soil-improvement measures were conducted on 1.9 million hectares.

Housing with a total area of about 23 million square meters, general education schools for almost 500,000 students, preschool institutions for 178,000 children, hospitals for 15,000 beds, and clubs and palaces of culture for 175,000 persons were erected at Nechernozem'ye's kolkhozes and sovkhozes. Extremely important work was done on the construction of hard-topped roads. About 30,000 kilometers of them were laid, primarily by roadbuilding organizations of Roskolkhozstroyob"yedineniye [All-Russian Association of Interkolkhoz Construction Organizations]. Many new animal husbandry structures, complexes and departments were erected. All these measures supported an appreciable rise in the output of agricultural products by the RSFSR's Nonchernozem Zone.

In addressing the November 1979 CPSU Central Committee Plenum, Comrade L. I. Brezhnev said that, for consistent improvement of the people's welfare, "it is necessary to implement with doubled and tripled energy the party's policy of raising effectiveness and quality. There are no alternatives to this."

Meanwhile, the new decree on Nechernozem'ye noted that local agricultural and soviet organs still are not paying enough attention to solving the most important questions of the zone's economic and social development.

The capital investment established for Nechernozem'ye, especially for the introduction of productive capacity, is not being assimilated completely. Cropping and animal husbandry products still are not being produced in the required volume, and the potential for industrial cooperation and for raising land utilization effectiveness still is not being realized completely.

The decree indicated simultaneously that party, soviet, agricultural and water-management organizations of the autonomous republics and oblasts of the RSFSR's Nechernozem Zone are obligated, based upon further intensification of agricultural production, widespread land reclamation, the integrated application of mechanization and of chemicals, production concentration, interfarm cooperation, and introduction of the achievements of science, technology and advanced experience into production, to provide in 1985 for a 30-percent increase in the gross agricultural output of the zone's kolkhozes and sovkhozes over the level achieved during the 10th Five-Year Plan.

It is well known that capital investment in the country's economy is constantly growing. It has grown also in the RSFSR's Nonchernozem Zone. The CPSU Central Committee and USSR Council of Ministers set the total capital investment in the zone's agriculture for 1981-1985 at 39.3 billion rubles, which is much more than for the preceding five-year period. The task of rural builders and designers is to solve a most important problem in businesslike fashion: how to obtain maximum yield from each ruble of capital investment. It is important above all to speed up and to support unconditionally the introduction of production capacity, housing, and facilities for cultural and personal-amenity purposes at each kolkhoz and sovkhoz, to reduce the inordinately spreading amounts of uncompleted construction work, and to observe operating schedules strictly.

Up until now it has not always been possible to do all these things because the main elements of construction operations have not always been closely coordinated with each other. In some instances the builders' tasks have been defined without taking their capabilities into account, and during the year their tasks often have been revised.

The new decree on Nechernozem'ye sets a firm task for the USSR's construction ministries and agencies for the 11th Five-Year Plan as a whole with respect to doing contracting work for the construction of facilities for production, cultural and personal-amenity purposes and of housing for agricultural and water-management enterprises and organizations.

In order to enable an uplift of Nechernozem'ye's agriculture during this five-year plan, many repair shops, facilities for storing agricultural machinery, and modern mechanized storage for mineral fertilizer are to be built, since the zone will receive during this period 390,000 tractors, 104,000 grain-harvesting combines, 20,500 excavators, 20,400 bulldozers, 4,300 scrapers and much other modern agricultural equipment, and mineral-fertilizer deliveries will be brought up to 6.68 million tons.

The CPSU Central Committee and the USSR Council of Ministers have established a task under the current five-year plan for the construction and introduction into operation in Nechernozem'ye of animal-husbandry complexes and mechanized livestock departments for the production of milk and the rearing and fattening of young steers, complexes for raising and fattening hogs, poultry factories for egg and broiler production, mechanized storage for fertilizer, materials for liming soils and other chemical products, hothouse combines, vegetable and potato storage, ensilage and haylage structures, and storage for grain forage.

This decree confirmed a major program for progress in the construction of housing and cultural and personal-amenity facilities in the countryside. The sum of 9.9 billion rubles was allotted for these purposes in 1981-1985.

Soviet and agricultural organs of the autonomous republics and oblasts of the RSFSR's Nonchernozem Zone and USSR ministries and departments that are doing construction work in this zone are to put into operation at kolkhozes, sovkhozes and other agricultural and water-reclamation organizations and enterprises during the 11th Five-Year Plan housing totaling 33.5 million square meters in area, preschool institutions for 230,000 children, clubs and palaces of culture for 272,000 people, and central rayon hospitals for 19,300 beds. The equipping of these facilities with utilities and services equipment is to be improved.

Road construction is to be speeded up. During the five-year period more than 38,000 kilometers of hard-topped roads are to be built and put into use.

In order to execute unconditionally such majestic plans for rural construction in the RSFSR's Nonchernozem Zone, it is necessary to promote socialist competition among rural builders still more widely, to study deeply the advanced experience that has been gained at many rural construction projects, and to introduce it into use everywhere. Experience in construction of the Nekrasov poultry factory in Khabarovskiy Kray, for example, has been instructive. The USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] subunits that erected this factory concluded an agreement for a "workers' relay race" with other construction participants and achieved the coordinated operation of all elements: the services of the clients, the designers, and the suppliers of equipment and materials. As a result, the poultry factory complex went into operation 3 years ahead of schedule.

The initiative of Ivanovskaya Oblast's CPSU Committee, which organized sponsorship-type assistance by industrial enterprises and accelerated the construction of livestock complexes and departments, produced good results. A bright example is the erection of the Lesnaya poultry factory, the country's largest, with a capacity of 10,000 tons of duck meat per year. Using the people's construction-project method, the factory was erected three times as fast as required by the norms.

As was noted at an All-Union seminar that convened for this purpose at Ivanovo, this experience was evaluated by an integrated approach--by the consistent and purposeful conduct of interrelated measures for improvement of the design, financing and organization of flowline-type construction, using industrially produced lightweight structure, by the involvement of enterprise workers at the construction project without detriment to the main activity, and by introduction of the brigade contract.

Rostovites showed good experience and initiative in construction. L. I. Brezhnev congratulated them on remarkable labor achievements and evaluated highly work experience under the slogan, "We will build it ahead of schedule, and we will assimilate it ahead of schedule."

The patriotic movement of Don workers that was aimed at obtaining high final results in the area of capital construction should find a wide response on the part of Nechernozemye's rural builders and provide for successful fulfillment of the 26th CPSU Congress's decisions and the tasks of the 11th Five-Year Plan.

The "Main Directions" for our state's development that the 26th CPSU Congress adopted stated: "Raise the quality of layout, architectural and constructional solutions and reduce construction costs." This relates wholly and completely also to the construction of Nechernozem'ye's rural communities.

In light of this, it should be noted that an extremely important problem, on the realization of which depend the pace and quality of the construction of Nechernozem'ye's housing and cultural and personal-amenity facilities, is the all-around industrialization of that construction.

The interests of the matter require the use at full capacity of both the urban housing-construction enterprises of the Union ministries and of the rural housing-construction combines that have been created in recent years. Interkolkhoz construction organizations can extend important assistance in the further industrialization of rural housing construction. In the Roskolkhozstroyob"yedineniye system alone, at the end of last year more than 40 percent of the housing was fully prefabricated.

The CPSU Central Committee and the USSR Council of Ministers decree, "On Further Developing Factory Production of Wooden-Panel Housing and Sets of Wooden Parts for Housing Made of Local Materials for Rural Housing Construction," has become a landmark for this important matter. Throughout USSR Ministry of Timber and Wood Processing Industry alone, 127 such enterprises and agencies that are sending their products for construction in Nechernozem'ye were established.

The party and the government have recognized that it is desirable to restrict during the 11th Five-Year Plan the construction and expansion of industrial enterprises in the Nonchernozem Zone in order to switch the construction capacity of contracting construction organizations to the erection of facilities for cultural and personal-amenity purposes and of housing, as well as of production-type agricultural buildings.

An important factor that provides additional amenities for villages and hamlets of Nechernozem'ye, as well as a rise in the cultural and living conditions of rural workers, is the CPSU Central Committee and USSR Council of Ministers decree that charges the USSR Ministry of Gas Industry, jointly with the RSFSR Council of Ministers and the Ministry of Construction of Petroleum and Gas Industry Enterprises, with establishing a listing of gas pipelines for the distribution stations that are needed to convert this zone's kolkhozes and sovkhozes during 1981-1985 to the use of gas. The RSFSR Council of Ministers has been granted the right to authorize the farms of this zone that are not supplied with gas to use, beginning in 1982, electric-heating installations for the heat supply of production-type facilities where the total installed capacity thereof for one community is less than 400 kilowatts. That same decree proposed that the RSFSR Council of Ministers, jointly with USSR Ministry of Agriculture and USSR Ministry of Rural Construction, approve for 1981-1985 a plan for the construction of one or two experimental demonstration settlements in each autonomous republic and oblast of this zone.

The CPSU Central Committee and USSR Council of Ministers approved the initiative of the Komsomol Central Committee in sending student detachments to build facilities that pertain to the economy of the RSFSR's Nonchernozem Zone--primarily housing, buildings for cultural and personal-amenity purposes, and roads in rural localities.

Other important measures also have been adopted that will provide for a further uplift of agriculture and a rise in the cultural and living standards of Nechernozem'ye's workers.

COPYRIGHT: "Sel'skoye Stroitel'stvo", 1981

11409
CSO: 1821/128

STATUS OF CONSTRUCTION IN SMOLENSKAYA OBLAST'S NONCHERNOZEM ZONE TOLD

Moscow SEL'SKOYE STROITEL'STVO in Russian No 8, Aug 81 (signed to press 13 Jul 81) pp 3-6

[Article by B. Katyukha, deputy chairman of the Smolenskaya Oblast Ispolkom: "Russia's Nechernozem'ye [Nonchernozem Zone of the RSFSR] Is Our Common Concern"]

[Text] The Soviet people and our friends abroad received the Accountability Report of party Central Committee General Secretary Comrade L. I. Brezhnev and "The Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990" with enormous satisfaction and great inspiration. In trying to grasp the meaning of these historic documents, one can picture vividly the heights to which our country will be raised during the 11th Five-Year Plan and during the decade as a whole.

The success of the foodstuffs program as an organic part of the current five-year plan depends upon how completely the contemplated plans for developing agriculture are realized and upon how wisely and effectively we manage to use the capital investment and supply and equipment resources that are earmarked for this branch of the economy.

The drive to carry out party and government decisions about developing Russia's Nonchernozem Zone has become truly a vital matter for the whole Soviet people. Party and economic organs are doing major creative work on raising agricultural production, strengthening its supply and equipment base, and improving housing and social and economic conditions for the countryside's workers.

Let us take, for example, our Smolenskaya Oblast. Each year here rural builders set new marks. During the 10th Five-Year Plan alone they did 735 million rubles' worth of contracting work--1½-fold more than during the preceding five-year period. Housing conditions were improved for 9,000 families in the countryside by building 450,000 square meters of housing. The erection of housing in the public inventory is done on a qualitatively new basis: with central heat supply, water lines, and sewer lines. The entire housing inventory of kolkhozes and sovkhozes has been electrified, and 87 percent of it has been adapted to the use of gas.

During the five-years, schools for 20,000 students, preschool institutions for 3,850 children, 205 stores, 78 dining halls and many other buildings for social and personal-amenity purposes were built.

Roadbuilding occupies a special place in improving rural workers' social and living conditions. In recent years the pace of roadbuilding has been raised greatly, and the engineering level and quality of structures have been improved. The base for road organizations has been strengthened: 38 asphalt plants are operating in the oblast, and the machinery fleet has grown. In Vyazemskiy, Shumyachskiy and Pochinkovskiy Rayons road workers are coordinating the operations of enterprises and contracting organizations jointly with local soviets. All the central kolkhoz and sovkhoz farmsteads of many rayons are now connected with the rayon centers by hard-topped roads.

I would like to note especially the selfless work of the Roslavl' DPMK [Mobile Mechanized Roadbuilding Column] and its best production workers--leader of an erectors' brigade M. D. Rybakov, driver B. V. Vasin, roadgrader operator A. K. Tarasov and excavator operator T. Ya. Doron'kin.

The production base of rural construction organizations has become much stronger. In recent years alone new capacity for producing prefabricated reinforced concrete has been introduced at the Vyaz'ma ZhBI [Reinforced-Concrete Products] Plant and the Demidov Keramzit-Gravel Department, with a productivity of 100,000 cubic meters per year. The construction of support bases for rural contracting organizations has been basically completed. New trusts--Mostospetsstroy [Special Bridgebuilding Trust], Smolensksel'khoztekhstroy [Smolensk Agrotechnical Construction Trust] and Vyaz'masel'stroy [Vyaz'ma Rural Construction Trust]--and the Smolensk SSK [Rural Construction Combine] have been established.

No, it is not very likely right now that you will find anywhere a collective that does not have an enthusiastic response to the party's words that were written in the "Main Directions for the Economic and Social Development of the USSR During the Period 1981-1985 and During the Period up to 1990": "In the RSFSR's Nonchernozem Zone, continue to execute the integrated program for transforming it into a region of highly productive cropping and animal husbandry and for developing the branches of industry associated therewith. Construct housing, roads and facilities for social, cultural, municipal services and domestic services purposes at an outdistancing pace."

In accordance with this principle, the CPSU Central Committee and USSR Council of Ministers adopted in April this year the decree, "On Further Development and Increase in the Effectiveness of Agriculture of the RSFSR's Nonchernozem Zone in 1981-1985."

The oblast's party organization and local soviets of people's deputies are doing much to implement this grand work program, which is close to and understood by the people. They will help construction-organization and industry-enterprise collectives to speed up scientific and technical progress, to build up the output of commodities through growth in labor productivity without an increase, and even with a cut, in manning, and to develop competition under the slogan, "For greater output with a smaller staff."

It is gratifying to note that representatives of various branches of the national economy are participating in realization of the program to transform Nechernozem'ye that the party and the government have planned. The oblast has gained valuable experience in erecting facilities with the forces of builders and industrial enterprise personnel. The erection of the Divenskaya poultry factory and the Kozin hothouse combine can be named as examples of major assistance by sponsoring organizations.

The oblast Students' Detachment imeni Yu. A. Gagarin--the largest construction detachment in the RSFSR's Nonchernozem Zone--has made a meaningful contribution to the rebuilding of Smolenskaya Oblast villages. During the last 5 years it did 179 million rubles' worth of contracting work.

In brief, the movement, "You live in Smolenskaya Oblast--be a builder," has become truly large in scale among the oblast's workers. And there is enough work for all.

The soviets of people's deputies are playing no small role in rebuilding the countryside. For example, the work of the soviets of Gagarinskiy Rayon merits a positive assessment. Building is being conducted here under a promising plan: it is constantly being monitored by rayon and village soviet ispolkoms. As a result, housing totaling 28,000 square meters in area and schools, kindergartens and clubs were put into use at sovkhozes and kolkhozes during the five-year plan. A majority of the farms have been well supplied with the amenities and have received an expressive architectural appearance.

Plans for the layout and buildup of all rural rayons and of central kolkhoz and sovkhoz farmsteads have been worked out. Right now they are undergoing additional revision. This work will be completed next year. At present, first-priority plans for the layout and buildup of 160 central farmsteads--43 of them to be built up in integrated fashion--are being implemented. Take the village of Nikol'skoye--the central farmstead of the Order of Lenin Kolkhoz imeni Radishev in Gagarinskiy Rayon--as an example. A full set of facilities for cultural and personal-amenity purposes--a Palace of Culture, a department store, a dining hall, a hotel and a kindergarten--has been erected here. Housing construction is being carried on intensively. All the buildings have been connected by streets with improvements and by squares and they have been linked up to central-heating, water-supply and sewer-system grids.

As life and the experience of many kolkhozes and sovkhozes indicate, solving the problem of integrated development invariably helps to provide farms with stable, skilled manpower. Concern about people and the village's future is becoming a characteristic feature of the activity of the oblast's party organization and of local soviets.

We are doing a lot of construction by the in-house method. During the last 5 years sovkhozes and kolkhozes assimilated 216 million rubles of investment, or a third of the total volume of capital construction in the countryside, by their own efforts. For example, the farm of the Rassvet breeding station of Novduginskiy Rayon is being built up successfully. Construction here is extensive, of good quality and integrated; half a million rubles of investment are being assimilated each year. At the Kolkhoz 20 parts"yezd of Roslavl'skiy Rayon, 27 apartment houses, a shopping center, a bathhouse, and a kindergarten were erected by the in-house method during the 10th Five-Year Plan. There are many such examples, and they testify convincingly that the in-house method is a major and important reserve for accelerating rural construction.

That is why the party organization and the oblast ispolkom are constantly extending help to sovkhozes and kolkhozes that do work by the in-house method. This year, for example, the oblast forestry administration, the Oblkolkhozles [Oblast Kolkhoz Forestry Association], and timber-processing enterprises are sending to the countryside 610 two-unit wooden apartment houses, tens of frameworks, and 5,500 cubic meters of squared beams.

Individual housing construction is being developed widely. During the past five-year plan housing totaling almost 96,000 square meters in area was built in the oblast through the funds of sovkhoz and kolkhoz workers. But there are also abnormalities in this important matter. Individual builders are experiencing difficulties in acquiring ready-made housing and parts therefor, electrical and sanitary-engineering equipment, and finishing materials. Rural housing-construction cooperatives have not been organized.

These deficiencies are now being eliminated. Soviet and economic organs are helping in individual construction and, as the potential permits, are providing builders with materials and granting them a wide choice of designs. Kolkhozes and sovkhozes, in their turn, are helping individual builders in every possible way with transportation and manpower.

The highest mission of the party's economic strategy is a steady rise in the material and cultural level of the lives of the Soviet people. CPSU Central Committee General Secretary Comrade L. I. Brezhnev pointed out to the 26th party congress that it is impossible to create stable workers' collectives and to use effectively the production potential built up in the countryside without rebuilding and updating the countryside and supplying it with the amenities. The task has been set of building well-appointed housing with good utilities structures, children's preschool institutions and clubs at an outdistancing pace.

Our oblast is being allocated more than 1.5 billion rubles for these purposes during the five-year plan, 800 million rubles of it for construction and installing work. During this period more than 1 million square meters of housing with the amenities must be built at sovkhozes and kolkhozes. During 1981-1982 each farm should introduce at least 10 apartments each year, 15 each in succeeding years.

Rural preschool institutions for 5,485 children, schools for 7,328 pupils, clubs for 12,800 persons, dining rooms that seat a total of 1,590 persons, and 38 shopping centers and stores are to be erected, and 2,000 kilometers of roads are to be introduced into use and almost as much road is to be overhauled.

Plans for improving Smolenskaya Oblast's agriculture are enormous under the 11th Five-Year Plan. And all this must be done on time, without errors, without excessive labor and monetary costs, and with good quality. These questions were examined at sessions of the oblast's soviet of people's deputies. Consideration was given to and plans were made on where to concentrate the main efforts in good time and what should receive concentrated attention in order to raise greatly the level and effectiveness of organizational work.

It is planned to accomplish the tasks set for rebuilding the countryside by improving the operation of existing rural construction combines and by creating new ones of higher capacity that have been designed to produce sets of lightweight industrialized structure with a high degree of factory prefabrication. This is now the master policy in rural construction.

Our oblast already has three SSK's: at Vyaz'ma, Safonov and Izdeshkovo, which can produce 35-series large-panel housing totaling 150,000 square meters in area per year, including 20,000 square meters of housing made of wood concrete. However, these enterprises still have not mastered their capacity completely. Many difficulties must be surmounted if the SSK's are to be enabled to give the oblast's rural workers 75,000 square meters of 35-series large-panel housing this year.

In the next year or two uncompleted construction is to be brought up to the standards, and the extension of deadlines for contracting work will not be permitted. Patronage assistance to the countryside by industrial establishments of the oblast's cities will be intensified. Broad segments of the population will be recruited to furnish civic improvements for the countryside.

Sometimes the solution of some rural-construction questions is not within the powers of one sovkhoz or kolkhoz. In such cases rayon ispolkoms will use expedient types of cooperation in the use of their funds. The domestic-services administration, the oblast consumers' union and other agencies will not build shopping facilities, personal-amenity services and public eating facilities in an uncoordinated fashion but will convert to the integrated erection of such facilities.

The active influence of local soviets, economic supervisors and trade-union and Komsomol organizations on all aspects of socialist competition will be of good help to rural construction. And it is being widely promoted actively in the oblast, among rural builders as well as others. Collectives of the Smolensk Rural Construction Combine and the Gagarin, Yartsevo, Shumyachi and Velizh MPMK's [Interkolkhoz Mobile Mechanized Columns], the Vyaz'ma, Roslavl' and Dukhovshchina DRSU's [Road Construction and Repair Administrations] and the Demidovo, Velizh and Vyaz'ma mechanized columns of Smolenskoblsel'stroy [Smolenskaya Oblast Rural Construction Administration], in response to the party and government decree about further developing Nechernozem'ye, adopted commitments to cope with the work program of this year and of the five-year plan as a whole ahead of schedule.

Many advanced production workers have supported the Muscovites' and Leningraders' call and have committed themselves to completing personal and brigade tasks for the first year of the current five-year plan by 7 November; in other words, they have resolved to beat the five-year plan calendar by 55 days. And this is oblastwide--additional amounts of work done, and schools, clubs and hundreds of new apartments built.

But it must also be noted that the oblast's rural builders still make mistakes in their work. Production facilities are not always being erected in concert with housing and facilities for cultural and personal-amenity purposes. The erection of utilities and service lines in the countryside remains a bottleneck. Work quality at some construction organizations remains at a low level, and the share of uncompleted construction is not being reduced.

These deficiencies result from the fact that construction-project and industrial-enterprise supervisors and specialists are slow at mastering modern methods for managing production, are poor at displaying initiative, and are not always able to concentrate the efforts of worker collectives on the main long-term tasks and problems.

Under these circumstances, local soviets constantly and deeply analyze the causes of the lag of certain collectives and mobilize builders for the skillful use of reserves. It is also necessary to make further radical improvements in construction in the village, to raise the level of supervision of this industry, to constantly strengthen discipline and personal responsibility, and to be more active in coordinating and monitoring the work of construction organizations and industrial enterprises of the rural construction industry.

One must not forget that the plan is law. Its fulfillment is not just a question of the honor of each worker. It is a question of the observance of state discipline. And he who tolerates the nonfulfillment of plans and goals should bear personal responsibility before the party and before the country.

Each rural worker should now strive to devote all his strength and knowledge to the successful accomplishment of the 26th CPSU Congress's decisions and to occupying a worthy place in the overall regime of struggle to transform the Russian Federation's Nonchernozem Zone.

COPYRIGHT: "Sel'skoye stroitel'stvo", 1981

11409
CSO: 1821/128

METALWORKING EQUIPMENT

MACHINE-TOOL INDUSTRY REVIEWED

Moscow EKONOMICHESKAYA GAZETA in Russian No 33, Aug 81 p 2

[Article: "The Development of Machine-Tool Building"]

[Text] The basis for increasing the effectiveness of all machinery manufacturing and the retooling thereof is machine-tool building. During the 11th Five-Year Plan Minstankoprom [Ministry of Machine Tool and Tool Building Industry] enterprises and organizations are to raise greatly the level and improve the quality of the machinery and tools that are being manufactured.

The industry comprises more than 300 production associations and enterprises and 102 scientific-research and industrial-design organizations and design-development bureaus. The industry's 600,000-strong workers' detachment has at its disposal all the potential for increasing production more than 1.4-fold and the productivity of the metal-cutting machine tools, forging and pressworking machines, and foundry and wood-processing equipment that it produces 1.3-fold to 1.6-fold during 1981-1985.

During the 10th Five-Year Plan the machine-tool building industry created a large production potential and backlog of scientific and technical work starts. Total production volume in 1980 rose to almost 1.5-fold the amount for 1975 and labor productivity was 38.5 percent higher. During this period Minstankoprom enterprises manufactured for the national economy 828,000 metal-cutting machine tools and more than 190,000 forging and pressworking machines. The automotive and tractor industry and other machinebuilding branches received 1,093 sets of machine-tool lines. The production of numerically controlled equipment and of equipment for set-up departments developed at an outstanding pace.

The equipping of customer enterprises with new tooling helped to raise production effectiveness and to increase labor productivity. For example, thanks to the introduction of automated lines and special machine tools manufactured by three plants--the Moscow Automated Lines Plant, the Automated Lines Plant imeni Ordzhonikidze (Moscow), and the Minsk Automated Lines Plant--about 58,000 worker positions were eliminated.

The processes of creating new machine-tool building items and of assimilating the series production thereof were speeded up. Despite all this, the level of production of progressive equipment--automated and semiautomated lines, heavy and specially made machine tools, and forging and pressworking machines--was inadequate.

Advanced Equipment for the Machine Builders

During the 11th Five-Year Plan the technical level of metal-cutting equipment is to be raised greatly and its production structure changed qualitatively. During this five-year plan the production of automated and semiautomated machines at Minstankoprom enterprises is to increase almost 2-fold, numerically controlled machine tools 2.3-fold (but 2.9-fold for the included multiple-operation machine tools with automated tool change--machining centers). The share of special, specialized and ganged machine tools in total production volume is to grow from 19 to 24 percent.

The products mix is to be expanded, and the output of high-precision and superhigh-precision machine tools is to be increased. The Lipetsk Machine-Tool Building Plant, Orsha's Krasnyy borets plant, the Vitebsk Machine-Tool Building Plant imeni Kirov, the Khar'kov Machine-Tool Building Plant imeni Kosior, the Saratov Machine-Tool Building Plant and certain other plants will take part in meeting this task.

It is planned to master the production of 202 standard sizes of numerically controlled machine tools. Fifty-six plants, 4 of the industry's institutes and 28 SKB's [special design bureaus] and KB's [design bureaus] are involved in carrying out this task. Simultaneous with expanded production, during this five-year plan conversion will be made to machine tools with arrangements for ChPU [numerical program control] based on the use of large integrated circuits and microprocessors.

In this connection, a large number of plants will be involved in the retooling. Up to 85 percent of all numerically programmed machine tools should be produced by 20 enterprises. Thus, large-series production of numerically controlled machine tools was organized at Moscow's Krasnyy proletariy plant in a short time in order to bring the output of such tools up to 6,000 units in 1985. At the same time, the manufacture of ordinary general-purpose machine tools is being reduced. This restructuring is occurring on various scales at the Middle Volga (Kuybyshev), Gor'kiy, Ryazan', Dmitrov and other plants.

A major portion of the models of equipment that are being produced corresponds to the level of modern equipment. But a large number of machine tool types are backward in their metals intensiveness, degree of automation and quality of manufacture. This pertains, for example, to products of the Charentsavan, Alapayevsk and Khabarovsk Machine-Tool Building Plants.

The Clients' Briefcases Carry Sets of Equipment

The requirement of various machinebuilding branches for multiple-operation machine tools is growing. Right now 36 standard sizes of such equipment are being manufactured. It is necessary to create and master the production of 55 more standard sizes. Twenty-two enterprises have been involved in this matter. The Odessa Precision Machine-Tools Plant, Vilnius's Zhal'giris machine-tools plant and certain others are operating successfully. The experience of Ivanovo's machine-tool builders, who, by converting to a progressive scheme for preparing for the production and mastery of new equipment, reduced the time for the design-development and manufacture of integrated machining centers 3-fold to 4-fold, deserves attention.

The Leningrad, Ul'yanovsk, Minsk and some other machine-tool building production associations have been called upon to make a major contribution to developing the production of new-generation multiple-operation machine tools, which are marked by a broad industrial potential, high production rates and high precision.

According to the plan for 1981-1985, the output of sets of automated and semiautomated lines is to increase 1.4-fold. Their production is being expanded mainly at 10 VPO [All-Union Production Association] Soyuzstankoliniya enterprises.

One of the most effective ways of operating numerically controlled machine tools is to organize them into sections that have been automated in integrated fashion.

Improving the structure of the metalworking equipment being produced and raising its effectiveness are the mutual obligation of manufacturers and customers. Much depends upon the latter. Meanwhile, the machinebuilding ministries still have not been forthcoming in preparing a draft plan for making up orders to Minstankoprom for the shipment of sets of equipment for the manufacture of mass-produced parts (crankshafts and camshafts, piston rings and pistons, turbine blades and other items). USSR Gosplan and the ministries, particularly Minavtoprom [Ministry of Automotive Industry] and Minsel'khozmash [Ministry of Tractor and Agricultural Machine Building], must as quickly as possible substantiate the introduction of sets of equipment and produce orders for shipment by machine-tool building enterprises.

It should be noted that the design of mass-produced parts and the standardization of industrial processes for manufacturing them have not been unified adequately in the automotive and tractor industries. Therefore, the creation of standardized processing and transporting equipment for automated lines becomes highly complicated.

One of the important tasks of machine-tool building during the 11th Five-Year Plan is to develop the production of automated manipulators. It is planned to manufacture more than 7,000 such manipulators, which will be built into metalworking, woodworking and foundry equipment, and about 3,000 manipulators for electroplating departments and sections.

Manipulator production is being organized at the Mukachevo Machine-Tool Plant, the Kursk Plant for Forging and Pressworking Equipment, and the Pinsk Foundry Equipment Plant. Research and design-development work on creating manipulators is being expanded.

In Order to Save Metal

The production of modern forging and pressworking equipment is receiving outstanding development during the current five-year plan. Thus, the output of heavy and specially built machinery is to increase by 36 percent, machines for obtaining precision blanks 1.4-fold, and machinery for high-precision closed-impression die forging 1.7-fold. This is associated with resolution of the problems of saving metal, with raising its utilization factor in industry, and with introducing low-waste industrial processes.

The collectives of the Voronezh and Dnepropetrovsk associations for producing heavy mechanical power presses, Odessa's Pressmash Association, the Voronezh Forging and Pressworking Equipment Association, the Tyazhpressmash Association of Ryazan', the Barnaul Plant for Mechanical Power Presses, and some other enterprises have been called upon to increase production of the necessary equipment.

Three special integrated programs for raising the utilization effectiveness of material resources have been worked out and are being implemented within the machine-tool building industry itself. The 1981 norm for rolled metal consumption has been reduced by an average of 4.45 percent, and for the five-year plan as a whole these norms are to be lowered by 21 percent. Monitoring the fulfillment of enterprise-established tasks has been made more rigid.

The recent CPSU Central Committee and USSR Council of Ministers decree about intensifying material-resource savings has given new impetus to this work. The ministry has established concrete figures for reducing metals intensiveness of 230 models of machine tools and machinery in 1981-1985.

During this five-year plan the industry plans to obtain 83 percent of growth in production volume by raising labor productivity (during the 10th Five-Year Plan the indicator was 79 percent). Progressive technology and new equipment are being introduced at enterprises, and the organization of production and of work is being improved. But the use of existing reserves is far from complete. About 150,000 workers are still engaged in manual labor.

All the potential for speeding up labor productivity growth exists. The path to this is the development of the brigade forms for work and wages, an expansion of multiple machine-tool tending, the introduction of NOT [scientific organization of work], and the organization of competition on the basis of a counterplan, which is not being used on an adequate scale in machine-tool building.

* * *

An analysis of the industry's work for the first 7 months of the year indicates that the overwhelming portion of production and science-and-production associations and enterprises carried out plan tasks successfully with respect to the main technical and economic indicators. Production volume increased in the first 7 months of the year by 6.2 percent over the same period of last year. Labor productivity rose by 5.4 percent.

The plan for commodity output was overfulfilled, thanks to additional production of most important items of the products mix--metal-cutting machine tools, forging and pressworking equipment, tools and tooling, consumer goods and goods for household use. At the same time, the task for certain types of metal-cutting and forging and pressworking equipment, woodworking machine tools and foundry equipment was not fulfilled.

The leading places in socialist competition are now occupied by the collectives of the Ul'yanovsk Plant for Specially Built Heavy Machine Tools, the Odessa Precision Machine-Tools Plant, the Tiraspol' Foundry Machinery Plant, the Moscow Krasnyy proletariy production association, the Association imeni Ordzhonikidze, and a number of other organizations.

However, there are still quite a few lagging enterprises in the industry. Although their number decreased by 20 in comparison with the first half of the year, there are still 30 enterprises that did not cope with plan fulfillment for the first half of the year.

The ministry's board and All-Union industrial association supervisors are required to look into the causes of unsatisfactory work by the lagging associations and to give urgent help to them and to transmit the advanced experience of those collectives that are achieving high indicators under equal conditions.

11409
CSO: 1821/127

IMPORTANCE OF MACHINE BUILDING IN RETOOLING ECONOMY EMPHASIZED

Kiev TEKNOLOGIYA I ORGANIZATSIYA PROIZVODSTVA: NAUCHNOVPROIZVODSTVENNYY SBORNIK in Russian No 2, Apr-Jun 81 (signed to press 8 Apr 81) pp 1-3

[Article by N. Z. Ponomarenko, deputy chief of the Ukrainian Communist Party Central Committee section: "Machine Building is the Basis for the Technological Retooling of the National Economy"]

[Text] An important role is being assigned to machine building as the basis for the technological retooling of all sectors of the national economy in fulfilling the tasks that were advanced at the 26th CPSU Congress for increasing the efficiency of social production and converting the economic system to an intensive method of development.

General Secretary of the CPSU Central Committee Comrade L. I. Brezhnev said in his report to the 26th CPSU Congress: "The basis of the foundations of scientific and technological progress is the development of science. But machine building can, most of all, throw the door wide open for something new. It is that advanced machine building, which a scientific and engineering concept creates, that is called upon to be developed and be embodied in highly efficient, reliable machines, devices and technological lines without delay."

During the 10th Five-Year Plan the volume of machine building products (from an enterprise in the 11 union machine building ministries) increased by 36.2 percent and labor productivity grew by 27.2 percent which is greater than the planned indicators. A 73.2 percent growth in gross production was provided by means of labor productivity. Even higher rates were achieved by instrument building, machine tool building, and machine building for animal husbandry and fodder production enterprises. Products worth 533 million rubles, including a substantial number of motor vehicles, tractors and corn harvesting combines; instruments, means of automation, computer technology and spare parts for it worth 62 million rubles; and agricultural machines worth 37 million rubles were additionally realized. Goods for cultural and everyday purposes and domestic use worth 40 million rubles were manufactured above the plan.

Two thousand, seven hundred and eighty samples of new kinds of products were created by collectives of enterprises in collaboration with scientific research and structural design organizations. For the first time in the USSR, 2,530 types of products, which reflect modern achievements in science and technology, were put into series production. More than 1,500 types of outmoded machines, equipment and instruments were removed from production.

The manufacturing of technology with increased individual power is continuously growing. Its relative proportion of the total output of machines in 1980 comprised more than 20 percent. The unique steam turbine for the Southern Ukraine AES with a capacity of 1 million kilowatts that was manufactured by the collective of the Khar'kov Turbine Plant imeni S. M. Kirov can serve as an example. A powerful three-stage transformer with a capacity of 1250 MVA [microvolt ampere] was turned out by the "Zaporozhtransformator" Production Association for the first time in native transformer building.

Voroshilovgrad diesel locomotive builders have begun production of a new family of highly economical main line freight carrying diesel locomotives with 8000 horsepower. The output of locomotives made in 2 and 3 sections with 6 and 9 horsepower has begun. The supply of complete automated technological lines for multi-ton chemical production and for modular self-contained gas pumping units has substantially increased at the Sumy Association imeni M. V. Frunze. The northern Donets scientific and production association "Impul's" and the Kiev production association "Elektronmash" have created and developed the production of modern M-6000 and M-7000 computer complexes and a series of small SM [super-powered] type machines. Many types of other technology for various sectors of the national economy have been mastered in machine building production.

Machine builders in the republic are working on improving the efficiency of production and the quality of machines, equipment and instruments. The output of products with the State Seal of Quality increased to 36.3 percent versus 14.5 percent in 1976. More than 77 enterprises and organizations in machine building are successfully applying the overall system for controlling the quality of products and its adoption is at the completion stage for the remaining ones. Along with this certain plants have still not achieved a fundamental improvement in the quality of the products being produced. Certain machines and equipment are inferior to the best native and foreign comparative items in important technical and economic indicators.

Sector enterprises and organizations are giving much attention to strengthening the policy of thrift and economy of material, energy, labor and financial resources. The norms for the consumption of ferrous rolled metals was reduced during the 5 years by 14.6 percent which satisfies the goal of the "Principal Directions of Growth for the USSR National Economy for the years 1976 to 1980."

The growth of complete mechanization and automation for production processes that are aimed at reducing manual labor was an important trend in the technological progress of machine building. This work was accomplished during the 10th Five-Year Plan on the basis of overall programs. During 1976 to 1980, 1,230 structures, sections, shops and enterprises were completely mechanized and 2,490 totally mechanized and automated lines were put into operation.

More and more attention is being given to the adoption of advanced technological processes.

The adoption of new techniques and technology has in many ways positively affected the growth in production efficiency and labor productivity. The economic effect as a result of the increase in the technological level of production exceeded 560 million rubles for the 10th Five-Year Plan.

An improvement in its organizational structure became an important factor in improving efficiency in machine building. During the 10th Five-Year Plan the formation of production and scientific production associations was on the whole completed. Their share of the gross production turned out of the total volume for the sector comes to almost 55 percent. This made it possible to increase the specialization and concentration of production and the centralization of services.

An increase in labor productivity by means of extensively developing brigade forms of organization became a characteristic feature. More than 40,000 brigades were working in the sector in 1980 and of those three-fourths are in basic production. Brigades with a fee for a single job authorization using a coefficient for work participation spread extensively.

Qualitatively new more complex assignments were set for machine builders during the 11th Five-Year Plan in the resolutions of the 26th CPSU Congress. The sector, as before, will be developed at unprecedented rates. It is necessary to ensure high rates of growth and modernization for energy and chemical machine building, the electrotechnical industry, machine tool and instrument building, the manufacture of machines for animal husbandry and fodder production and others.

The expertise of the Ternopol' production association "Vatra," where new ways have been found for reducing the timeframes for developing and creating modern technology, deserve attention.

Great demands are being made for improving the quality of products to conform to the best world and native samples. It is necessary to strengthen science's ties to production, to increase the rates of renovating the technology that is being produced, to do much in the way of technologically retooling machine building plants and forming experimental sections and shops, and to increase the efficiency of all work.

The purposeful work of collectives in Lvovskaya oblast, where the overall system for controlling quality was developed, is generally well known for improving the qualitative indices. Their initiative has been extensively applied in all sectors and is producing good results.

While adopting the Lvovskaya system, many labor collectives have developed it and supplemented it with new contents.

A goal is being set to persistently reduce the consumption of materials and most of all the metal consumed by the technology being produced, to ensure that all types of materials being employed are used completely and that the goals established for economizing material, fuel and energy resources are strictly met, and to actively wage a battle against the phenomenon of poor management.

The initiative of workers in the Odessa scientific production association "Kislorodmash," which provided the entire growth in the volume of products manufactured by means of metal that was economized and which was approved by the Ukrainian Communist Party Central Committee, deserves extensive application in solving these problems. Competing under the slogan "All of the growth in production from economized metal," this collective is ensuring the planned increase in the output of products without a growth in the consumption of material resources.

Important significance is being given to the requirement of the thrifty use of labor resources for the conditions of the eighties. One of the many ways of accomplishing this task is the overall mechanization and automation of all technological operations in production and the expansion of the output and use of automated manipulators.

The work of the Zaporozhskaya Oblast party organization can serve as an example of a creative approach to solving the problems of reducing manual labor and of more effectively using labor resources. Having achieved great successes during the 10th Five-Year Plan and continuing to compete during the 11th Five-Year Plan under the slogan "Manual labor on the shoulders of machines," the collectives of the sector's enterprises have committed themselves to reduce the use of manual labor by one half, to mechanize the work of 30,000 people and to manufacture and adopt 1,000 robots in production.

The great strengths of specialists--highly qualified workers and engineering and technical personnel--exist at machine building enterprises and in the numerous scientific research and structural design institutes and organizations. They are filled with determination to make a fitting contribution toward accomplishing the tasks set by the 26th CPSU Congress for the technological retooling of the country's national economy.

COPYRIGHT: UkrNIINTI, 1981

9495
CSO: 1821/126

METALWORKING EQUIPMENT

ADVANCES IN AUTOMATED PRODUCTION CITED

Automated Control Systems

Moscow EKONOMICHESKAYA GAZETA in Russian No 22, May 81 p 12

[Article: "At the Enterprises of the Ministry of the Machine Tool and Tool Building Industry"]

[Text] At present 57 ASUs [automated control systems] are in operation at enterprises of the Ministry of the Machine Tool and Tool Building Industry. During the past five years the ministry has completely met the goal for adopting computer technology and ASUs.

UVKs (governing computer complexes) have begun to be used for totally automated sections to control technological processes from machine tools with ChPUs [computer programmed control]. Their total number has already reached 150 units.

The adoption of a single series of EVMs [computers] served as the foundation for enterprises (associations) to design ASUs on the basis of new methods of creating efficient systems using data banks, applied program packages and also teleprocessing information systems.

Automated structural design and technical work (SAPR) on the basis of an EVM should be counted among the number of new trends that have been realized in the Ministry of the Machine Tool and Tool Building Industry. Use of the system substantially accelerates the formation of documentation for the products that become more complicated each year without increasing the number of structural designers. The adoption recently of a SAPR in the Moscow SKB [Special Design Bureau] of Automated Lines and Machine Tool Units will make it possible to annually complete up to 1,000 designs for spindle units, 50 designs for electrical equipment and 20 for calculating cutting processes. A system of automated design for the technical portion of machine tool plants' designs has been put into experimental use at the "Orgstankinprom" Scientific Production Association. At the Ul'yanovsk GSKB [State Special Design Bureau] for milling machines 2,350 calculations for parts and assemblies of units are transferred to an EVM and of this number 20 percent are done in a dialogue manner using video terminals. The use of automated tracing of detail drawings has begun.

About 300 programs (principally for the "Mir" and "Nairi" type EVMs) for automating structural design calculations have already been worked out in the sector. The creation of systems for automating the design (first phase) of technological processes and new structures for metalworking, casting and woodworking equipment has begun.

New Machine Tool

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 10 Jul 81 p 2

[Article by T. Karyakina: "Machine Tools are Shedding Excess Weight"]

[Text] The collective of the Novosibirsk production association "Tyazhstankogidropress" imeni Yefremov is making unique equipment. Recently the family of heavy machine tools increased by yet another "recruit."

The shops themselves at this large Siberian plant are bright, spacious and equal to the products. The bays are separated by luminous rail indicators--this machine, shining with its fresh paint which has just been accepted by the commission, also begins its route to the client from them. Despite the late hour--the first shift ended long ago--people stand near it.

"Has the commission found any defects?" I ask, interested, B. Prikhno, the chief structural designer of the plant.

"Why no, the machine tool received a high evaluation and the representative of the client from Kerch' would not have refused to take it right away. But our structural designers requested a few more days for experimental tests. For the product is unique...."

For the first time in this country Siberian structural designers have created a heavy longitudinal planing machine with a tractive force of 40 tons and equipped with a programmed control. Compact, without the usual levers and control knobs the new unit is one-fourth the size of its brothers. A not very large drive gear provides for operations using two feeders at the same time. The extensive technical capabilities of the machine tool make it possible for it, in the opinion of the creators, to be much in demand at ferrous metallurgy plants, at enterprises that manufacture switch tracks for railroads and at many others. The economic effect from its adoption will comprise about 60,000 rubles.

Along with the finished unit the foundation has already been laid for a new one. The appearance of the future machine is still not very attractive: it is as if the base was turned over to exhibit the uneven welded joints. But it is precisely these to which B. Prikhno directs my attention.

"We will try to use the new welded structural forms of the base components for a horizontally cutting and boring machine tool. Cast iron was replaced by steel and two pluses were immediately obtained: first, the quality was improved, and secondly, metal consumption was reduced. For cast iron components are always more massive than they are required to be. And it is possible to put the thickness that we need for structural soundness into steel. As a result almost 20 less tons of metal goes into manufacturing this machine tool than for the unit that preceded it.

....Workers in the association have given the national economy 190 unique machine tools and 125 hydraulic presses during the last five-year plan. Forty new models have been developed and about half of the products are being turned out with the State Seal of Quality. The main approach that is being taken by Novosibirsk machine tool builders in the 11th Five-Year Plan is to ensure the high technological level and reliability of products while reducing metal consumption at the same time.

Automated Production Lines

Moscow PRAVDA in Russian 21 Jul 81 p 2

[Article: "Automated Machines for Automated Machines]

[Text] Saratov, 20. TASS. A shop for manufacturing machine tool automatons and manipulators, that are not being turned out by industry, was built at the Saratov bearing plant.

In recent years many production sections have been reconstructed and new highly productive lines have been installed at the enterprise which made it possible to increase the output of bearings and improve their quality. But the demand for this product is constantly growing. For example, the creators of spindle machine tools required bearings with extremely high precision in order to reduce noise in fabric shops. Saratov workers had to design and assemble a special machine tool for the final machining of surfaces for this. And here is another example. The assembly and packaging of articles has become a "narrow" space where new highly productive lines have just been installed in the largest needle-shaped bearing shop. Innovators have created a special automated device for this.

The same shop that was for machine tool building became the primary production base for the enterprise's structural design section where the innovators' plans are realized in metal. Such models are being created that meet not only modern demands for technological progress but that are also acquiring a real "plant" appearance.

New Production System

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 22 Jul 81 p 2

[Article: "Technology is the Seal of Quality"]

[Text] Recently a meeting of the board of the USSR State Committee for Standards was convened with representatives of a number of machine and instrument building ministries taking part. The results of adapting and the outlook for developing the Uniform System of Technological Preparations for Production was discussed. At the request of our correspondent, Deputy Chairman of the USSR State Committee for Standards comments on the results of the meeting.

"The system was adopted at more than 3,000 enterprises and associations in 20 ministries. Products with the Seal of Quality increased to a known degree at these enterprises by a factor of two and even five thanks to it. The timetables for developing new items were reduced by a factor of 1.5 to 2.

"Especially good results were achieved at the Moscow Automated Lines Plant 'imeni the 50th Anniversary of the USSR. Almost two-thirds of the equipment turned out there was able to be standardized with the aid of the system. Typical technological processes and the adoption of a complex of standards helped to increase the output of products with the Seal of Quality to 91 percent.

"Good results were also obtained at the Srednevolzhsk production association 'Transformator,' the Kazan' Compressor Plant, the Moscow machine tool plant 'Krasnyy proletariy' and a number of others.

"Now new tasks stand before machine builders. During this five-year plan an intensification of production must be provided by means of economizing labor, material, and energy resources and by improving the quality of products. The overall program for adopting and developing the Uniform System of Technological Preparations for Production in Machine and Instrument Building that was worked out by the State Committee for Standards in collaboration with ministries and departments is directed towards this....

"We just discussed the principal trends at our joint meeting. It was acknowledged that the general line of the overall program is to ensure the development and adoption of advanced energy saving technology which has no waste products.

"The fact was also taken into consideration that in certain sectors of machine building the level at which typical technological processes are employed is insufficient. Therefore, it specifies in the program that the amount they are used is to be increased to 50 to 60 percent.

"The third primary trend in developing the system of preparing for production is the extensive adoption of automated means of designing technological processes and means of supply. This will make it possible to drastically reduce the timetables for developing and putting items into series production. Structural designers and designers will be freed from routine non-creative work.

"The fourth trend is working out regulations for organizing production processes and methods of evaluating efficiency when selecting the best variations. The expertise of the Ministry of the Electrical Equipment Industry for certifying the quality of technological processes will be disseminated."

What will the realization of the program give? The bare calculations of the specialists promise: labor productivity in machine and instrument building will be raised by 23 to 25 percent and the coefficient of metal use to 0.8 with the aid of the system. The timetables and expenditures for preparing for the production of new high quality items will be substantially reduced.

Automated Machine Tools

Moscow PRAVDA in Russian 8 Aug 81 p 2

[Article by Z. Bystrova, correspondent of PRAVDA: "The Optimum Variation"]

[Text] It has become customary to relate Ivanovo with cotton and woolen fabrics, furniture and other consumer goods. At the same time the textile area is increasing its range of "trades" before our eyes. Today Ivanovo is also related, in particular, to machine tools with computer programmed controls that reflect the latest achievements in science and world practice. The principally new scheme of a unified total engineering and production service, which has become the standard for many enterprises, was developed at the Ivanovo Machine Tool Building Production Association imeni the 50th Anniversary of the USSR.

The association today occupies, by right, a place among those that are farsighted. It was not without humor that I was told about one client, who needed a "machining center" type of machine tool in order to produce spare parts for imported technology. They were interested in how their business partner in Sweden resolves the problem. The firm has such equipment available there. Where was it obtained? It turned out that it was in Ivanovo.

So one need not become overly surprised about the fact that the Ivanovo association, which is not well known to many, being exhibited as an example for all, proved to be unexpected for several of those participating in the all-union conference on machine tool building which took place in the spring of last year. And of those directors present who were given the floor it was V. P. Kabaidze once again from Ivanovo. The very same one whose plan for a number of policies fluctuates "back and forth" and who has had no progress and bonuses for almost two years. Nonetheless Ivanovo machine tool builders were rendered their due for the fact that they exhibited persistence, initiative and innovations, that they accurately took stock of the long range growth of the sector and that they created multi-operation machine tools with programmed controls that rival any other in the shortest possible time.

"Well, Ivanovo workers--well they are fanatics. One can only envy them!" Thus were the successes perceived by many of V. P. Kabaidze's colleagues. They imagined very well how many complications and inconveniences and how many additional burdens Ivanovo workers have placed upon their shoulders while undertaking to turn out machines that are radically changing the technology that is coming into being in machine building production. And in the old areas with their former resources.

The USSR Ministry of the Machine Tool and Tool Building Industry bought the first class technology needed by the Ivanovo association. Administrators in a number of sectors were found who agreed to invest funds in Ivanovo machine tool building.

Now, green and orange machine tools are in spacious rambling shops. They are of various sizes and "nationalities." The orange ones are innovations of our own production. Of the 150 machine tools with ChPU [computer programmed control] and "machining centers" about one quarter are our own. The new technology has already been adopted for more than 60 percent of all the components in basic production that are machined. Ivanovo multi-tool horizontally boring machine tools with programmed controls are twice as productive as typical machine tools with ChPU. They are successfully operating in a number of countries and contracts for their delivery have been concluded in Austria, the FRG, Switzerland, Finland and Japan.

"We ourselves undertook to produce a machine tool with ChPU and to equip a plant with this new technology while obtaining the best results in the sector for utilizing it," says K. Ya. Firsov, chief engineer. "The very use of machine tools with programmed control is precluded by a lack of organization. We simply cannot operate according to the old method—improperly regarding a primarily numerical result as being of paramount importance in an enterprise's activity. Planning today is a complicated multiplanning analysis and not mechanically compiling data obtained from different locations. It is precisely from above that it is important to evaluate how many and what types of machines are needed."

"The addition of 250,000 to 300,000 typical machine tools to those that are already available in the country is wasteful. And just where are workers to be gotten for them? It is necessary to cover the capacities needed by means of more modern machines and a higher degree of automation."

There really was no other way for Ivanovo machine tool builders than that which was selected. But still how are they able to create a machine in one year that usually takes several years to produce?

Vladimir Pavlovich Kabaidze is equipped with a pencil and a sheet of paper. The arithmetic, they say, is simple here. The rates of technological progress need to function fluidly. Otherwise you will find yourself on your rump. Shakedowns, approvals and delays for a general purpose machine tool were somehow bearable when the changes in it were of an evolutionary nature. Begin to make a modern machine like that and you will already be thrown out of the ring while going the first part of the distance. The machine becomes outmoded. Up to a hundred signatures alone are required and more than 30 of them with seals, each having the right of "veto." Three years go by for nothing. And even if the papers are signed another year or two is needed in order to obtain an experimental model. Then the comments and adjusting crew. That is again two years.

"Now," feels the director, "the tempo is different--technology is being developed on the basis of electronics and electrical technology. We all miscalculated and promised the ministry that we would already make the first 'machining center' at the end of one year. But after getting approval is the experimental model. We obtained 'a good one.' We worked out a supply schedule after refusing to move documentation from office to office in stages. Technologists and metallurgists work here simultaneously with structural designers. Base components were just designed and model makers have already begun to work. We began to design our first 'machining center' 3 January 1976. On 15 April all of the molds were ready. In May 1977 the first Ivanovo 'machining center' was presented at the 'Machine Tool-77' exhibition in Moscow. The work was within the limits of the plan and the funds. The machine was manufactured in just one year. And the 'Modul'-500' that was produced based on it and which was also presented at the exhibition was made in just four months from the start of the design work. In October 1977 yet another Ivanovo 'OTs' [machining center] was demonstrated at the World Machine Tool Exhibition in Hanover (FRG). It was sold from the exhibition to the West German firm 'Bosch.' Its productivity in comparison with a general purpose machine tool is greater by a factor of 3 to 20. The number of operations when machining a complicated component is reduced to one or two instead of 30 to 50 with typical technology."

This was a new word not only in native but also in world machine tool building. During the 10th Five-Year Plan Ivanovo workers worked out and developed 7 models of multi-operation machine tools. But here are the paradoxes of our planning system: the old products were not taken out of the enterprise. As a result, after having provided a growth in commodity production by almost a factor of 1.5, and after having raised labor productivity quite a bit, the collective turned out to be among the number of those "lagging behind."

On the eve of the 26th Party Congress, the textile area nervously awaited as to how machine tool builders would meet their pre-congress obligations. In less than a year they had created a principally new completely automated multi-operation machine tool with programmed control--the "Modul' IR-320 PMF4." This was the collective's answer to the high evaluation of its work given by L. I. Brezhnev personally in his address to the CPSU Central Committee. "Soviet machine building," it said in the report to the 26th CPSU Congress, "has obtained a unit that provides automated machining of complicated housing components with a maximum concentration of technological operations including commercial machining and polishing. Labor productivity increased by a factor of 2.5 to 3 in comparison with the multi-operation machine tools with ChPU that are being turned out. The time for gearing up production during production shifts was sharply reduced. This unit surpasses well-known modern models in world machine tool building in its technological level and provides a good foundation for improving the structural form of the equipment turned out during the 11th Five-Year Plan."

Everyone is behind giving precisely this new technology "the green light" everywhere. However, its use presupposes many changes in labor organization, management and the training of personnel.

"Some sorry business executive," says Kabaidze, "will take our new product and by his ignorance will ruin it and then brush aside all machine tools with ChPU altogether. Such technology cannot be trusted to just any hands. We are prepared to organize its efficient and skillful use. We are convinced that we are capable of selling not only machine tools but also the technologic process as a whole."

The association is organizing a special structural design bureau and additional sections for designing and producing equipment and tools for the client. The enterprise has also taken it upon itself to train programmers and electronics personnel. Seminars take place here with administrators and chief engineers from various enterprises. Step-by-step, service is being adjusted close to the international principles of technical service for the machines: installation and repair, modernization and spare parts.

Due to the party obkom's initiative the association's work attracted the attention of prominent scientists, important specialists, and responsible workers in ministries and departments. New research laboratories were formed at the enterprise and ties were strengthened with the subdivisions of the USSR Academy of Science and other scientific collectives.

The association is, without a doubt, on the rise. But it still has many unresolved problems. And the subject of this report is the main one. It is impossible to consider it a normal phenomenon when a plant, after voluntarily shouldering complicated responsibilities and obligations, ends up in a disadvantaged position. Working out, creating, developing and adopting modern technology should be seriously encouraged. Otherwise all that is gained by such labor moves into the shadow and the usual but outmoded accounting indices and evaluation categories become of paramount importance. And so it happens that the collective is "not pulling its weight," and this means it receives reduced bonuses and funds for housing construction, social and cultural purposes. And it should be just the reverse, that creative research be encouraged, and the collective that has taken on the role of the leader of technological progress be supported by every means.

Programmed Machine Tools

Kiev RABOCHAYA GAZETA in Russian 8 Aug 81 p 1

[Article by N. Andryushechkina, correspondent of METALLIST : "The Advantages of Automation"]

[Text] A multi-machine tool service is being incorporated more and more at the Konotop "Krasnyy Metallist" plant. Workers in the electric machine shop became convinced in practice of the fact that this is an effective factor in improving labor productivity. During the 10th Five-Year Plan alone 12 machine tools with computer programmed controls (ChPU) were put into operation here among the many others. The use of them increased the relative proportion of machine time in the production process and helped to automate small series production. A flow line of machine tools with ChPU is now operating in the electric machine shop.

"A characteristic feature of it," says V. D. Latin, master of the machine section, "is the fact that the operation of the lathe, drilling and milling machine tools are not tied to the overall pace of the work. A component is machined on each one of them individually and the machining of several surfaces are simultaneously combined in a single operation."

"One can really be convinced of the advantages of the automated machine's service in practice," adds A. M. Padchenko, electrician for repairing electrical equipment. "Lyuba Burenko, a high school graduate, has worked as an operator on the ChPU for only several months. While still not having a production classification she completed those operations on a proper professional level which could be done only by a third or fourth class lathe operator before, and now having received a classification the girl operates four machine tools. And this is due to utilizing time which before was needed to complete manual labor for operating the machine tools."

The adoption in production of a flow line of machine tools with ChPU increased labor productivity by a factor of three or more. For example, 60.2 minutes were spent to machine covers for the oil reservoir to a drive gear bolt of a pump ZNP on general purpose machine tools and now it is only 20.9 minutes. Correspondingly, instead of 45 minutes only 11.6 minutes are spent on machining a bushing for the drive gear. This was achieved by means of reducing subsidiary and machine time for machining components.

Completing production operations on machine tools with ChPU has several advantages when compared with the work done on general purpose machine tools. For example, when manufacturing components on a machine tool with computer programmed controls expenditures for design work, drawings and equipment are substantially reduced. Take just the use of devices for the general purpose readjustment of technological equipment. It is possible to complete nine component operations for various machines with one device. Group adjusters that are used for drilling operations have a substantial effect on reducing time for readjustment work. It is necessary to just replace the cutting tool and install a different program for this. And if one considers the fact that a combination tool (for example, a drill and a reamer) can be used on these machine tools then the advantages are even greater.

9495
CSO: 1821/123

END

END OF

FICHE

DATE FILMED

6 Oct 198